

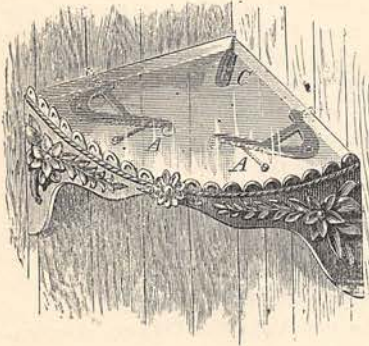
## THE GATHERER:

AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, AND SCIENCE.

Correspondents are requested, when applying to the Editor for the names and addresses of the persons from whom further particulars respecting the articles in the GATHERER may be obtained, to forward a stamped and addressed envelope for reply, and in the case of inventors submitting specimens for notice, to prepay the carriage. The Editor cannot in any case guarantee absolute certainty of information, nor can he pledge himself to notice every article or work submitted.

**An Adjustable Corner Shelf.**

The American shelf illustrated herewith is adapted to fit any corner where there is woodwork which can be perforated.



The shelf, as shown, is of glass, to reveal the adjusting device beneath, but it can be made of wood or other material. Two D-shaped pieces, AA, are pivoted on the shelf and each carries a prong which

enters the wall and is fixed there by means of a panel working in a toothed surface on the pieces. The inner angle of the shelf is further supported by a pin, C, which works in a slot and presses into the wall. The shelf is handy for displaying *bric-à-brac*; but we think a device which did not penetrate the wall would have an advantage over it.

**A Venerable Tortoise.**

In the courtyard of the Artillery Barracks, Port Louis, Mauritius, there is a large tortoise which was ceded to Great Britain along with the island in 1810. It has never abandoned its former haunt since then, and as it had been there a long time before the cession it is now believed to be over 200 years old. Nevertheless it is hale, and though we cannot say lively, it is still able to carry two men on its back. This grand old crustacean stands about 2 feet high, measures  $8\frac{1}{2}$  feet across the carapace, and weighs 330 lbs. It is evidently the last of the gigantic tortoises of the Indian Ocean, which linger still in the Aldabra Islands, north-west of Madagascar.

**Finding the North Pole.**

The ordinary instruments of the mariner and traveller will not be an infallible guide in discovering the true position of the north or south pole, and hence M. Gréville has suggested the employment of the gyroscope for this purpose. The gyroscope may be described as a scientific teetotum, and it has the property observed in that toy of keeping its axis in one position. In fact, a gyroscope kept in rotation by means of the electric current has been tried on board French

warships in lieu of the compass. The axis of rotation is set in the line of the earth's axis of revolution, or in other words pointing to the Celestial Pole; and since it keeps this position whatever way the ship moves, it becomes a true indicator of the north and south line. Obviously when such a gyroscope-compass is taken to the north pole its axis will point vertically upward, that is, to the zenith. A plumb-line freely suspended will point vertically downward at the same place; hence the true position of the pole will be shown when the axis of the gyroscope is parallel to the plumb-line. At any other position the axis of the gyroscope and the direction of the plumb-line will be at an angle to each other, and that angle will represent the latitude of the place. An apparatus for the purpose has been constructed by M. Trouvé, the well-known mechanic of Paris.

**The Mont Blanc Observatory.**

Our illustration shows the astronomical and meteorological observatory which is to be erected on the summit of Mont Blanc under the auspices of the eminent astronomer, M. Janssen, who, it will be remembered, undertook a journey to the top despite his age. The summit of the mountain is formed by a narrow edge of rock 100 metres long running east and west. It is perpetually covered with snow and ice



many feet thick, and it has been decided to build the observatory on the snow as the rock was too difficult to reach. To avoid the disturbing effect of the furious storms which sometimes rage on the summit the building, as will be seen from the framework shown in the figure, has the form of a truncated cone and is in two storeys. The roof is flat and will serve as a platform for meteorological observations. The walls, doors, and windows are to be double in order to protect the observers from the cold. The floor will also be double, and traps will permit the observers to reach the surface of the snow and inspect the screw-jacks for adjusting the level of the building in the event of the snow sinking. In case of accident a cottage is to be erected on the Grand Rocher Rouge, 300 metres below the summit, and will serve as a refuge. During the coming spring and summer the actual work of erection will be carried out. The material and parts of the building have been prepared and are now stored at Chamounix awaiting the advent of warm weather.



A Wire Floor.

A flooring made of flat wires wound round cylindrical cross-rods as shown in the figure has been introduced for malt kilns and other places where an indestructible and open floor is desirable. Over 700,000 square feet of this novel flooring have already been laid down in various countries.

#### Telephotography.

Professor W. W. Jacques recently delivered an address before the German Technical Society of Boston in which he referred to some experiments he had seen on the transmission of photographs to a distance by means of electricity. He said:—"The laboratory consisted of two rooms. In one was an ordinary photographic camera, a small developing closet, and on a table in the middle of the room a cubical box, in one side of which was a slit of sufficient size to receive a postal card. From this box two wires stretched across the room to a partition wall and passing through this extended to a similar cubical box standing on a table in the middle of an adjoining room. I was given an ordinary postal card and asked to write a short note upon it, and wrote, 'Good-morning, how do you do?' My friend then took the card and placed it about six inches in front of the camera, where it was well illuminated by an electric lamp. Then he pressed the button of the camera, took the plate holder to the developing closet, and presently reappeared with a hastily made negative which he dropped into the slit in the cubical box on the table in the middle of the room. I then went into the adjoining room and there, issuing from the corresponding box on the table in the middle of the room, was a piece of thin paper the size of a postal card, on which appeared *in facsimile* the words I had written,

'Good-morning, how do you do?'" This report is sufficiently remarkable to be given in its author's own words; but until the *modus operandi* can be disclosed it will be well to suspend our judgment of the process.

#### The Senses of the Sea-Anemone.

The beautiful zoophyte called the sea-anemone, which is familiar on our rocky shores and in our marine aquaria, has been specially studied by Herr Nagel at the Zoological Station, Naples, and he has ascertained that the tentacles which radiate from its mouth and seize its food are the seat of three senses, namely, of taste, touch, and heat. With its tentacles the creature makes choice of its food. Thus when a piece of sardine was placed near them it was seized by the tentacles and carried to the mouth, then swallowed; but a ball of blotting paper was refused. When the ball was saturated with sardine juice it was seized but not swallowed, and when a similar ball was impregnated with quinine the tentacles drew back from it. Pieces of meat placed in the mouth of the anemone were not swallowed, apparently because they had not been tasted by the tentacles.

#### The Volunteer Officers' Decoration.

We have had the new Volunteer Officers' Decoration



VOLUNTEER OFFICERS' DECORATION.

(From a photograph by permission of the Makers, Messrs. R. & S. Garrard & Co., Haymarket, S.W.)

photographed that our readers may see what it is. In the terms of the Royal Warrant it consists of "an oak-wreath in silver, tied with gold, having in the centre the Royal cipher and crown in gold." The ribbon is green, and one inch and a half in width, and the decoration is attached to the left breast by means of a silver oak-bar brooch. To be eligible for the decoration, an officer must have been efficient for twenty years. Large as is the list of officers qualified, these bear but a small proportion to the total number of Volunteers who have served long and

faithfully, and we heartily join in the hope that the authorities will see their way before long to extend the application of the Order to all ranks of the Volunteer forces.

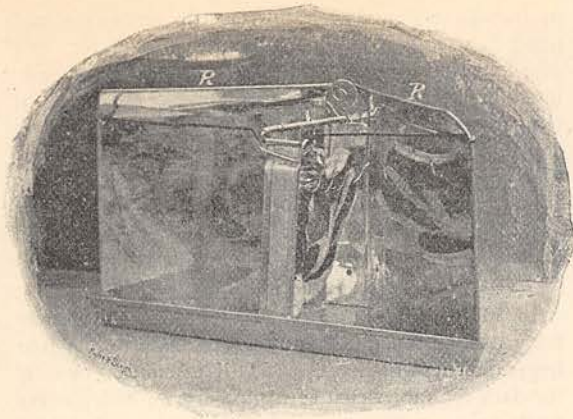


FIG. 1.

**A Reflecting Oven.**

The oven which we illustrate in Fig. 1 is placed before the fire and the joint, which is hung at right angles to the front of the fire, is not directly roasted

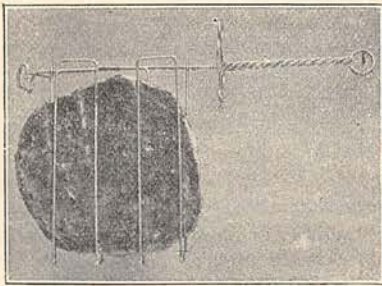


FIG. 2.

by the latter, but by reflection of the radiant heat from the two reflectors, R, R. It is thus equally cooked all round. Toast is also made in the oven by suspending the slices of bread in the wire cage shown in Fig. 2. The oven is made of strong "block tin," and stout wire.

**Spark Photography.**

By means of an electric spark the shadow of any changing object such as a jet of water, a flying bullet, or a broken film of soap can be photographed with great precision, and Mr. F. J. Smith, of Oxford, has recently shown that the same process can be utilised in scientific research, as, for example, by photographing the shadow of a frog's heart while beating, or of flying insects. Spark photographs of the front view of an object, not merely the shadow of it, can also be obtained by means of a concave reflector, such as a concave lens silvered, and reflecting the light of the spark on the object. In order to avoid over-exposure a very quick shutter should be used in these experiments.

**Growing Lilies From Pips.**

Lily-of-the-valley can be grown in a room from the old pips of the outdoor lily bed or from pips bought from a seedsman. Fill a shallow pan three or four

inches deep and twelve or fifteen inches in diameter with good rich soil and set the pips in it about one and a half inches apart. Then put the pan in a place where the soil in it will freeze hard, otherwise no blooms need be expected. After the pips have been frozen from four to twelve weeks, bring the pan into a warm room, where they will gradually thaw. The lilies will bloom in about a month afterwards, and even without sunshine, though it is better to give them sunshine in the earlier part of the day. They should be well watered after they begin to sprout.



FIG. 1.

**A Jardiniere Gas Stove.**

A decorative gas stove combined with a jardiniere for holding plants has been brought out by a well-known firm, and was recently exhibited at the Agricultural Hall. It is illustrated in the figures, and, apart from the earthenware pedestal, consists of a vase having a perforated lid and sides in which are placed the gas-burners. Above these a deflector is adapted to secure perfect combustion and do away with smoke or smell. The burners are invisible when the lid is on, and the heat radiates from the holes and sides



FIG. 2.

of the vase, as shown in Fig. 1. When the burners are removed and the lid taken off, the vase can be turned into a jardiniere, as shown in Fig. 2. The stove is of glazed ware and easily cleaned by washing or brushing it.

#### A Travelling Plant.

The "putty foot" or "Adam and Eve" (*Aplectrum hymenale*), an American plant, has the peculiar property of migrating, or shifting its position by from two to three centimetres a year. A new tubercle sprouts from the old root in the course of the year, and takes the place of the latter, which decays. In this way the plant makes what we may term a yearly flitting.

#### Tempered Copper.

A promising future for copper is opened up by the new process for tempering it and so making it as hard as steel or as malleable as wrought iron. The metal,

as is well-known, has a low electric resistance and hence is useful in making dynamo commutators and gear for electric railways. The drawback of its softness for this work is now overcome. Samples of tempered copper containing 99.981 per cent. of pure copper possess a tensile strength of 64,000 pounds on the square inch and a contractile strength of 189,000 pounds on the square inch. The tempered metal is also being used for trunk telephone and telegraph wires.

#### A Luminous Fungus.

In Tahiti there grows on certain trees a species of fungus which remains luminous for about twenty-four hours after it is gathered. The light emitted by it in the dark resembles that of a glow-worm, and, like the firefly, it is sometimes worn by the belles of the island in their black hair or as an ornament of dress. The plant has been called the *Pleurotus lux*.

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## PRIZE COMPETITIONS.

OPEN TO ALL READERS OF "CASSELL'S MAGAZINE."

### PHOTOGRAPHIC LANDSCAPE COMPETITION.

Three Prizes of £5, £4, and £3, are offered for the best, "second"-best, and "third"-best photographic landscapes respectively. The photographs must be "half-plate" size, mounted, and should have pasted on the back of the mount a declaration signed and attested in accordance with the General Rules governing these Prize Competitions (see CASSELL'S MAGAZINE, December, 1892, page 80), that the competitor is an amateur photographer, and has in all respects complied with the regulations. Both artistic and technical excellence will have due weight in the award of the judges. No competitor may send in more than one photograph. The words, "Photographic Landscape Competition," must be marked on the wrapper enclosing each photograph, and all photographs must be in the Editor's hands not later than June 20th, 1893.

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### SIX-PART STORY COMPETITION.

#### AWARD.

The award of the Prizes offered in July, 1892, for the three best Stories in Six Parts has been a matter of considerable difficulty. After due consideration of all the manuscripts offered, the Editor awards the FIRST PRIZE of FIFTY POUNDS to

Miss F. HAYDON, Stalybridge;

The SECOND PRIZE of FORTY POUNDS to

Mrs. PUMPHREY, Shotley Bridge, co. Durham.

For the THIRD PRIZE, two competitors had equal claims, so the Editor has decided to award an EXTRA PRIZE of the same value, THIRTY POUNDS, and to allot the two equal Prizes to

SCOTT GRAHAM, Yarmouth, Isle of Wight; and  
Miss M. S. FAILL, Partickhill, Glasgow.

HONOURABLE MENTION is accorded to the work of two competitors:—

Miss N. M. MARRIS, Lirmingham; and  
Miss J. BELLERBY, Bath.

In due course the successful stories will be published. The Editor will be obliged if unsuccessful candidates will at once make application for their MSS., in accordance with Rule No. 7.

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### PHOTOGRAPHIC PORTRAIT COMPETITION.

#### AWARD.

Just as this page is going to press the award in this Competition is complete, and the Editor is glad to be able to publish it at once.

The FIRST PRIZE of £5 is awarded to

W. SMEDLEY, Derby;

The SECOND PRIZE of £4 to

MARION PORTER, Bloomfield, Lake, Isle of Wight.

The THIRD PRIZE of £3 to

HENRY KILBURN, Bishop Auckland.

HONOURABLE MENTION to the following competitors in the order of merit:—

WALLACE HEATH, Shrewsbury;  
FRANK H. ROBERTS, Middlesborough;  
A. M. MORRISON, Glasgow;

And the Judges COMMEND the work of five other competitors:—

A. J. CHAMP, Walthamstow;  
EDWARD DRY, Tottenham, N.;  
W. C. A. ANSON, Forest Hill, S.E.;  
DORA DAVIES, Sinclair Road, W.; and  
F. L. SPICER, Leamington Spa.

A selection of the successful photographs will be published in an early number of the MAGAZINE.